

# SC WaterWays

answering today's water resource challenges for future generations

## Rain Garden Plants: *Introduction*

Sarah A. White, Nursery Extension Specialist, Clemson Extension Service

December 2013

### Choosing Plants Tolerant of Drought and Flooding

This series of factsheets provides in-depth cultural and design-based information for selection and use of rain garden plants. This information helps you decide when and where it is appropriate to use a particular plant species.

The main purpose of rain gardens is to slow and detain stormwater runoff from impervious surfaces such as roadways, rooftops, parking lots, and sidewalks, permitting water infiltration to the groundwater table and reducing runoff into surface waters. If water running off of these impervious surfaces is treated using plants, soils, and native bacteria, we can reduce pollutant pressure (nutrient, bacterial, sediment, oils, and metals) on nearby surface waters and help to improve the health of the environment, while reducing strain on water management infrastructure.

**“Rain gardens are landscaped depressions that receive stormwater runoff and allow the runoff to slowly infiltrate to the groundwater table.”**

Rain Gardens: A Rain Garden Manual  
for South Carolina

Typical conditions in southeastern rain gardens include extended periods of drought interspersed with periods of rainfall where flooded conditions might occur. Most ornamental plant species are not adapted to widely fluctuating moisture conditions and would not survive in this rapidly changing environment. Since rain gardens are



*Rain garden installed to manage parking lot runoff at Furman University in Greenville, SC.*



*Rain garden installed to manage runoff from Hayden Conference Center roof at the SC Botanical Gardens in Clemson, SC.*

designed to slow and gradually permit water infiltration, flooded conditions should not persist over three days. The three-day limit is to reduce the likelihood of mosquito breeding and emergence, and also to provide a large buffer to retain runoff from less frequent, yet large, storm events.

Thus in a properly designed rain garden, if everything else (siting, design, planning for runoff volume, amendment, etc.) is handled properly the limiting factor to success will be plant choice.

Plant success in a rain garden is dependent upon choosing plants that tolerate the range of environmental conditions that are likely to occur over the rain garden “lifetime.” In rain gardens there are grade changes, so some plants should be ideally adapted to periodic flood and drought conditions, while other plants placed around rain garden edges or margins could be more drought tolerant.

Before designing the rain garden, two considerations are important when choosing plants for installation:

1. In situations with heavy clay soils when an underdrain is installed, shrubs and trees should be used with caution because their roots can grow towards the oxygen available in underdrain pipes and clog them.
2. Keep the planting design simple by using fewer varieties of plants that are most suited to the conditions of the site. This will also allow you to find out what works best in your rain garden, and then to plant more species when needed.

Even though rain garden plant species are adapted to drought, it is important to get them established in the landscape before expecting them to be drought tolerant.

This requires bi-weekly, deep irrigation cycles for the first 3 (herbaceous perennials) to 9 months (larger woody shrubs and trees) to allow the plant root systems to establish and expand within the rain garden soil substrate.

When choosing your plants consider site design information as if you were designing a traditional landscape planting. Evaluate whether the site is full sun, part shade, or shade, and make your plant choices to suit the climatic conditions. Determine if the soil where the rain garden will be installed will maintain relatively moist conditions throughout the year, or if it will dry out between rain events. Plan for year-round interest with a backbone or framework of evergreen and deciduous plants that provide seasonal interest and structure and are complemented by herbaceous perennials. Use ornamental grasses and herbaceous materials to fill-in gaps, soften edges, and provide color throughout the seasons.

Your rain garden will change over time, like other garden spaces. When initially establishing a rain garden choose only a few species to plant and get them established in your garden. This backbone of plants will provide the basic “look” you want. After success with those initial plantings, then begin experimenting with the more unusual plants that we avid gardeners want to incorporate into our landscapes. Beyond appearance, plants within rain gardens serve as biofilters and help trap contaminants in runoff that otherwise would pollute our surface waters. Every effort to reduce and and cleanse stormwater runoff helps. Rain gardens not only help clean water, but look great too!



Content reviewed by Katie Giacalone, Clemson Carolina Clear; and Bob Polomski, Clemson University.  
Images courtesy of Sarah A. White and Cathy Reas-Foster.